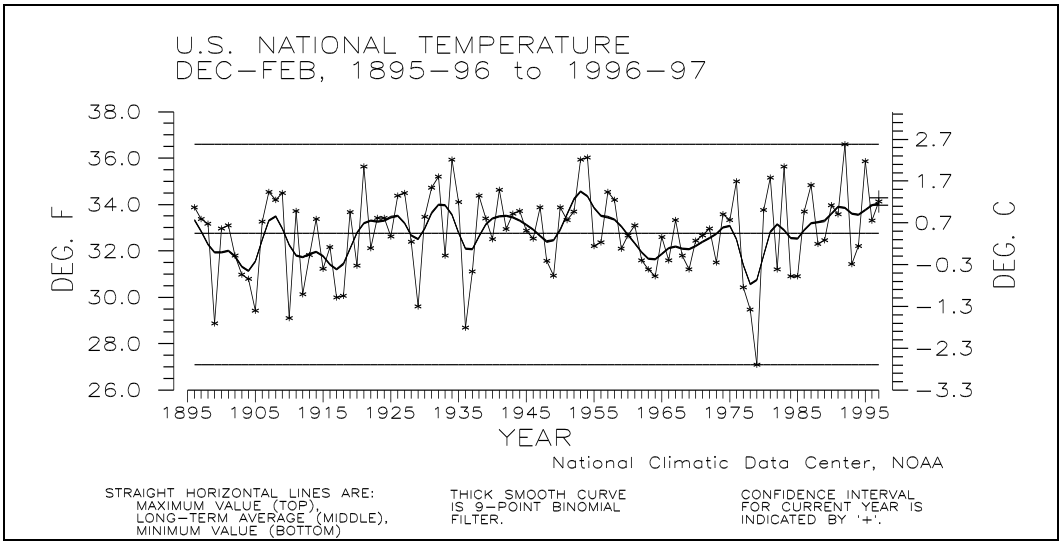
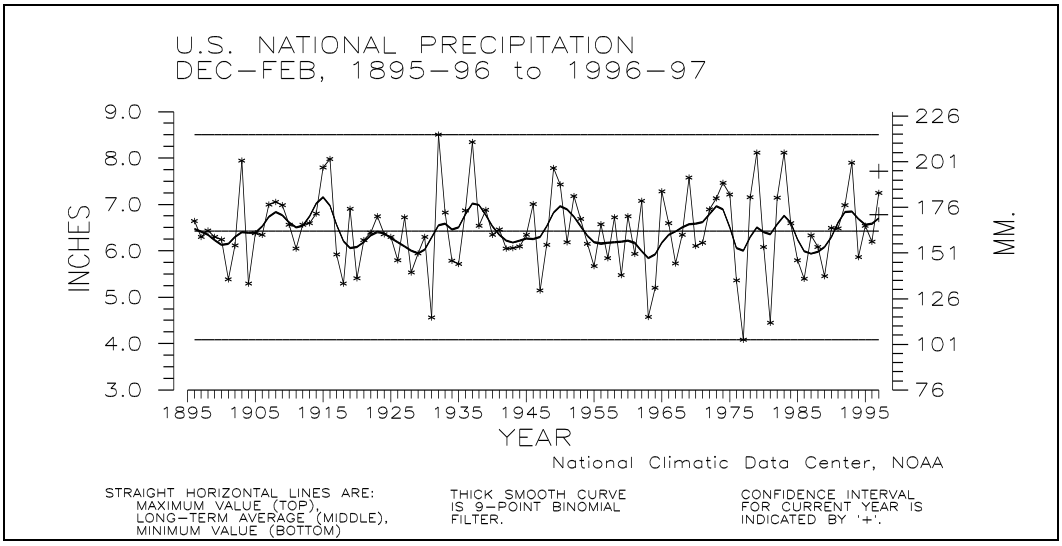
FEBRUARY 1997 **HISTORICAL CLIMATOLOGY SERIES 4-7**
Includes 1997 Winter Summary Volume 9 Number 2

CLIMATE VARIATIONS BULLETIN





noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE / NATIONAL CLIMATIC DATA CENTER ASHEVILLE, N.C.

This CLIMATE VARIATIONS BULLETIN (CVB) is a preliminary report that puts current monthly climate anomalies into historical perspective using climate databases archived at the National Climatic Data Center (NCDC). It is issued on a monthly basis. Supplemental sections are included which address seasonal and annual perspectives, when appropriate.

Current data are based on preliminary reports from River Forecast Center stations and First and Second Order airport stations obtained from the National Weather Service (NWS) Climate Prediction Center (formerly, Climate Analysis Center), and preliminary tornado statistics obtained from the NWS National Severe Storms Forecast Center. THE CURRENT DATA SHOULD BE USED WITH CAUTION. These preliminary data are useful for estimating how current anomalies compare to the historical record, however the actual values and rankings for the current year will change as the final data arrive at NCDC and are processed.

The following NCDC datasets are used for the historical data: the climate division drought database (TD-9640), the hurricane datasets (TD-9636 and TD-9697), the tornado dataset (STORM DATA), and the monthly station dataset (LCD supplemental files). It should be noted that the climate division drought database consists of monthly data for 344 climate divisions in the contiguous United States. These divisional values are calculated from the 6000+ station Cooperative Observer network.

If you have access to the Internet, copies of the CVB are available via both the NCDC's World Wide Web (WWW) server and the NCDC's anonymous FTP server.

NCDC's WWW server
URL for the CVB: http://www.ncdc.noaa.gov/publications/cvb/cvb.html

NCDC's anonymous FTP server
Machine: ftp.ncdc.noaa.gov
Directory: /pub/data/cvb

If you are a climate researcher and would like to order copies of the historical datasets used to make graphs of the type in this report, call 704-271-4994 or fax a letter to 704-271-4876 or mail a letter to the address given below, ATTN: Research User Services.

All other questions or requests for data should be made by calling 704-271-4800 or sending a fax to 704-271-4876 or by writing to:

National Climatic Data Center, NCAA
Federal Building
151 Patton Avenue, Room 120
Asheville, NC 28801-5001

If you use any of the information from this CVB, please identify "National Climatic Data Center, NOAA" as the source.

UNITED STATES FEBRUARY AND WINTER CLIMATE IN HISTORICAL PERSPECTIVE

William O. Brown
Richard R. Heim Jr.
National Climatic Data Center, NCAA
Global Climate Laboratory
Federal Building
Asheville, NC 28801 USA

Tables:

Graphs:

Maps:

Table 1. Precipitation And Temperature Ranks, Based On The Period 1895-1997. 1 = Driest/Coldest, 103 = Wettest/Warmest For February 1997, 103 = Wettest/Warmest For Jan-Feb 1997, 102 = Wettest/Warmest For Sep 1996-Feb 1997, 102 = Wettest/Warmest For Mar 1996-Feb 1997.

Region	Feb 1997	Jan-Feb 1997	Sep 1996-Feb 1997	Mar 1996-Feb 1997
Precipitation:				
Northeast	9	9	93	99
East North Central	73	81	77	63
Central	73	45	63	87
Southeast	48	60	74	77
West North Central	63	99	102	90
South	100	79	79	68
Southwest	65	97	88	68
Northwest	21	52	100	101
West	4	48	92	89
National	52	74	101	98
Temperature:				
Northeast	97	87	85	65
East North Central	81	62	35	13
Central	87	63	38	19
Southeast	86	78	62	35
West North Central	78	64	28	21
South	57	48	47	40
Southwest	52	61	71	97
Northwest	66	74	60	71
West	62	80	87	101
National	79	71	49	46

Table 2. Extremes, 1961-90 Normals, And 1997 Values For February. It Should Be Noted That The 1997 Values Will Change When The Final Data Are Processed.

Precipitation (Inches)

Region	Driest Value	Driest Year	Wettest Value	Wettest Year	Normal Pcpn	1997 Pcpn
Northeast	.70	1987	5.43	1900	2.65	1.73
East North Central	.31	1987	2.40	1922	.95	1.18
Central	.67	1947	5.46	1909	2.64	3.06
Southeast	1.36	1898	7.16	1903	4.15	3.91
West North Central	.30	1985	1.07	1936	.55	.65
South	.66	1916	5.63	1903	2.30	3.65
Southwest	.14	1972	2.07	1980	.80	.90
Northwest	.69	1920	5.95	1904	2.86	1.94
West	.21	1964	6.49	1986	2.27	.37
National	.96	1947	3.05	1903	1.98	2.00*

* Preliminary Value, Confidence Interval + or - .15 Inches

Temperature (Degrees F)

Region	Coldest Value	Coldest Year	Warmest Value	Warmest Year	Normal Temp	1997 Temp
Northeast	11.6	1934	31.6	1984	23.3	29.1
East North Central	1.1	1936	29.6	1954	17.6	21.0
Central	20.6	1978	41.8	1930	32.2	37.9
Southeast	37.8	1895	56.4	1927	47.1	52.1
West North Central	2.7	1936	34.5	1954	22.2	24.6
South	33.7	1905	53.5	1930	45.2	46.7
Southwest	25.1	1903	42.8	1995	35.9	35.7
Northwest	23.3	1933	39.7	1963	33.5	33.9
West	32.6	1903	48.8	1963	42.7	43.1
National	26.3	1899	42.1	1954	34.3	36.7*

* Preliminary Value, Confidence Interval + or - .3 Deg. F.

Table 3.
Statistics For Selected River Basins: Precipitation Ranking For Oct-Feb 1996-97 and Dec-Feb 1996-97, Where Rank of 1 = Driest, 102 = Wettest, Based on The Period 1895 to 1997; Areal Percent of The Basin Experiencing Severe or Extreme Long-Term (Palmer) Drought, And Areal Percent Of The Basin Experiencing Severe or Extreme Long-Term (Palmer) Wet Conditions, as of February 1997.
River Basin Regions as Defined by The U.S. Water Resources Council.

River Basin	Precipitation Rank Oc-Fb	Rank De-Fb	% Area Dry	% Area Wet
Missouri Basin	101	98	.0%	57.9%
Pacific Northwest Basin	100	99	.0%	73.9%
California River Basin	84	83	.0%	44.6%
Great Basin	102	99	.0%	51.3%
Upper Colorado Basin	102	102	.0%	68.4%
Lower Colorado Basin	60	59	28.3%	.0%
Rio Grande Basin	62	60	.0%	3.9%
Arkansas-White-Red Basin	64	39	.0%	8.3%
Texas Gulf Coast Basin	60	59	.0%	29.7%
Souris-Red-Rainy Basin	96	83	.0%	49.3%
Upper Mississippi Basin	88	68	.0%	22.9%
Lower Mississippi Basin	76	57	.0%	.0%
Great Lakes Basin	78	77	.0%	26.8%
Ohio River Basin	28	14	.0%	.0%
Tennessee River Basin	53	36	.0%	.0%
New England Basin	69	65	.0%	18.3%
Mid-Atlantic Basin	79	53	.0%	31.8%
South Atlantic-Gulf Basin	63	45	.0%	.0%

Table 4. Temperature and Precipitation Ranks for Dec 1996-Feb 1997, Based on the Period 1895-96 to 1996-97. 1 = Driest/Coldest, 102 = Wettest/Hottest.

Region	Precipitation	Temperature
Northeast	59	96
East North Central	82	56
Central	26	75
Southeast	43	83
West North Central	102	45
South	52	71
Southwest	81	78
Northwest	99	72
West	88	89
National	89	81

Table 5. Extremes, 1961-90 Normals, and 1996-97 Values For Winter (Dec-Feb)

Precipitation (Inches)

Region	Driest Value	Driest Year	Wettest Value	Wettest Year	Normal Pcpn	1997 Pcpn
Northeast	4.56	1980	13.97	1979	8.94	9.11
East North Central	1.61	1931	5.55	1969	3.50	4.14
Central	4.24	1963	17.30	1950	8.60	7.48
Southeast	5.77	1938	16.54	1936	12.15	11.07
West North Central	.84	1931	3.02	1997	1.81	3.02
South	3.57	1918	13.12	1932	6.88	6.93
Southwest	.93	1904	6.53	1993	2.58	3.40
Northwest	3.86	1977	15.73	1965	10.69	15.04
West	2.52	1977	15.87	1969	7.18	11.53
National	4.08	1977	8.50	1932	6.35	7.25*

* Preliminary Value, Confidence Interval + or - .47 Inches

Temperature (Degrees F)

Region	Coldest Value	Coldest Year	Warmest Value	Warmest Year	Normal Temp	1997 Temp
Northeast	16.6	1918	30.7	1932	23.7	28.3
East North Central	8.4	1936	24.5	1987	16.4	17.4
Central	23.9	1978	40.8	1932	31.1	34.0
Southeast	41.2	1978	55.5	1932	46.2	49.4
West North Central	9.5	1979	27.6	1992	19.4	18.9
South	38.0	1905	48.6	1952	43.1	44.8
Southwest	27.3	1933	38.4	1981	33.2	34.9
Northwest	21.7	1949	37.2	1934	30.5	31.8
West	31.7	1949	43.9	1981	39.9	42.2
National	27.1	1979	36.6	1992	32.3	34.1*

* Preliminary Value, Confidence Interval + or - .2 Deg. F.

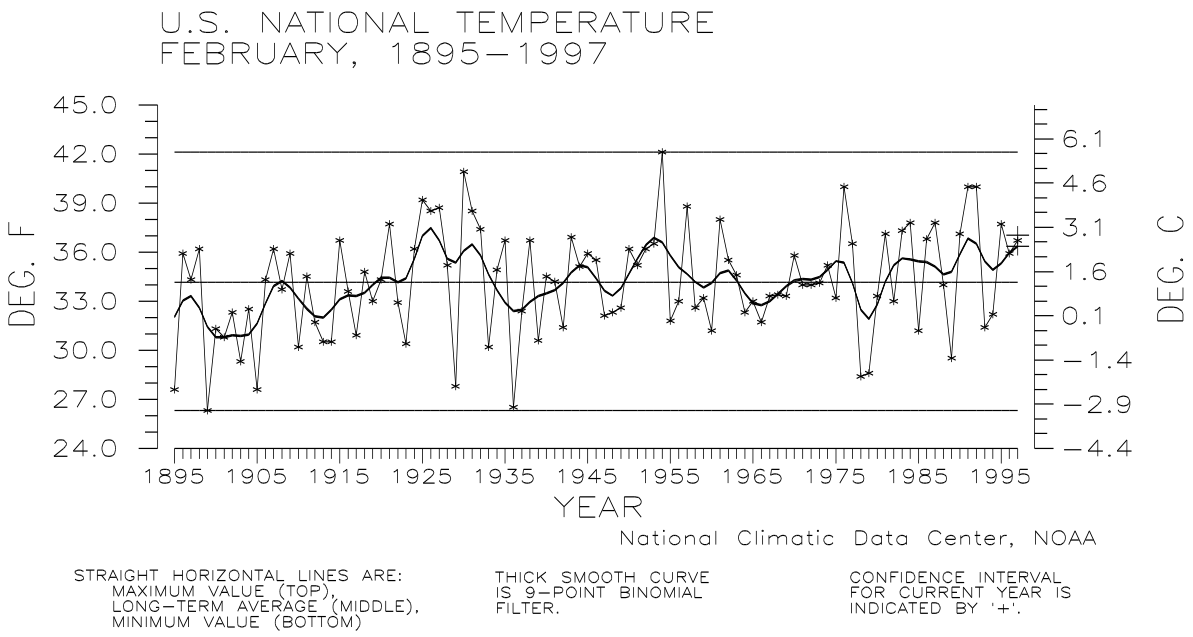


Figure 1: Preliminary data for February 1997 indicate that temperature averaged across the contiguous United States was above the long-term mean, ranking as the 25th warmest February since 1895. About six percent of the country averaged much warmer than normal, while none of the country averaged much cooler than normal for the month.

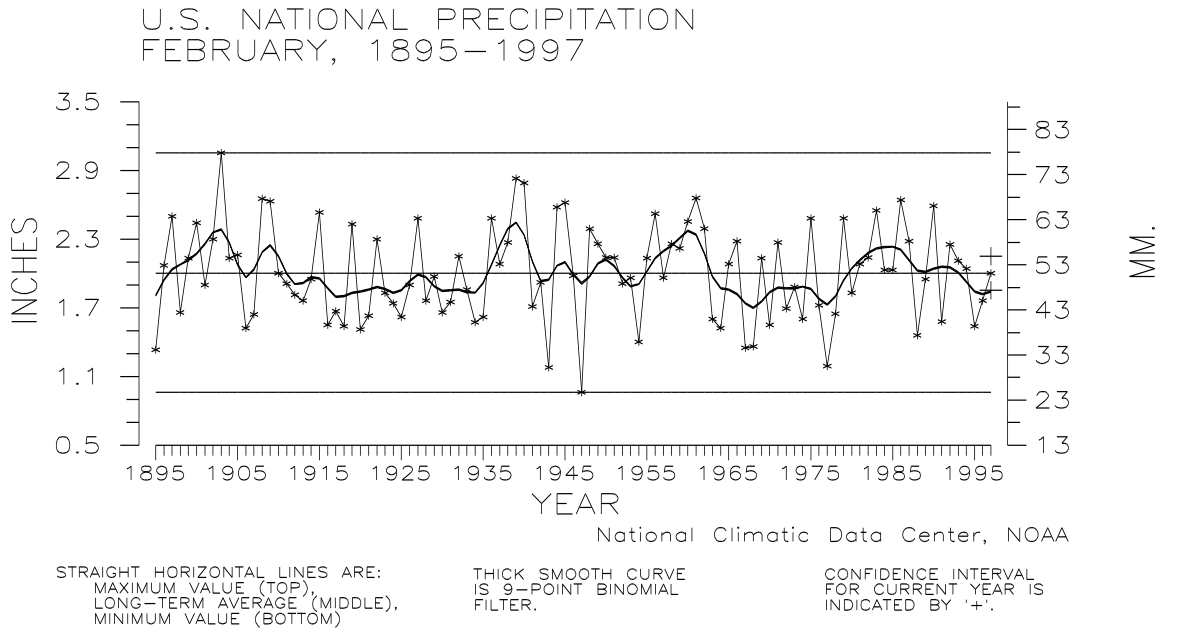


Figure 2: Preliminary data for February 1997 indicate that precipitation averaged across the contiguous United States was at the long-term mean, ranking as the 52nd wettest February since 1895. Nearly one-seventh (14.0%) of the country averaged much wetter than normal, while nearly a seventh (12.9%) was much drier than normal.

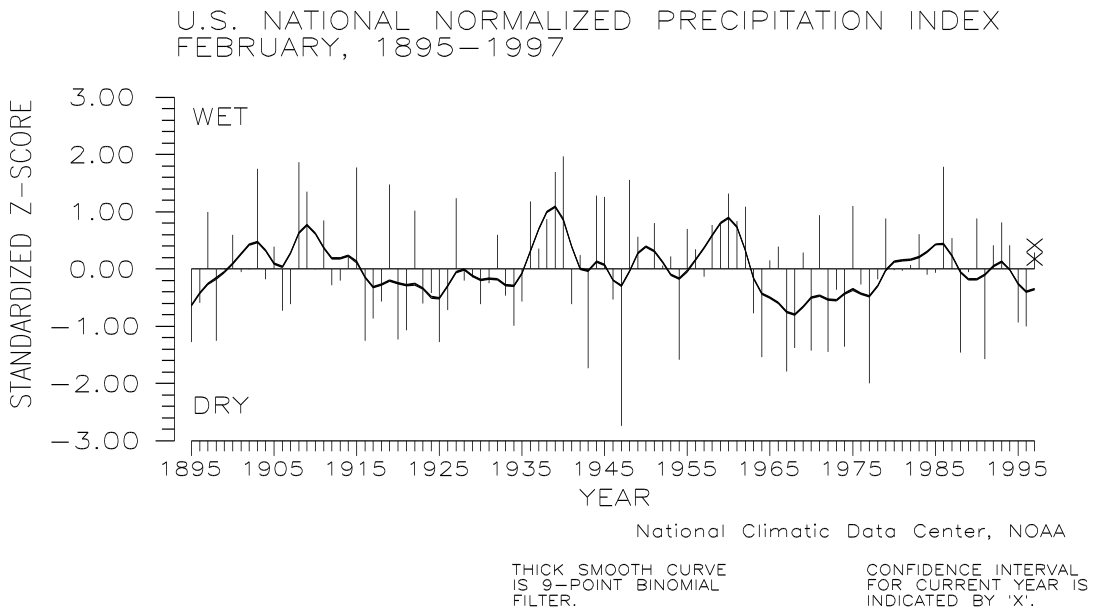


Figure 3: The preliminary national standardized precipitation index ranked February 1997 as the 41st wettest February on record. This standardized z-score is estimated to be accurate to within 0.12 index units and its confidence interval is shown as an 'X'.

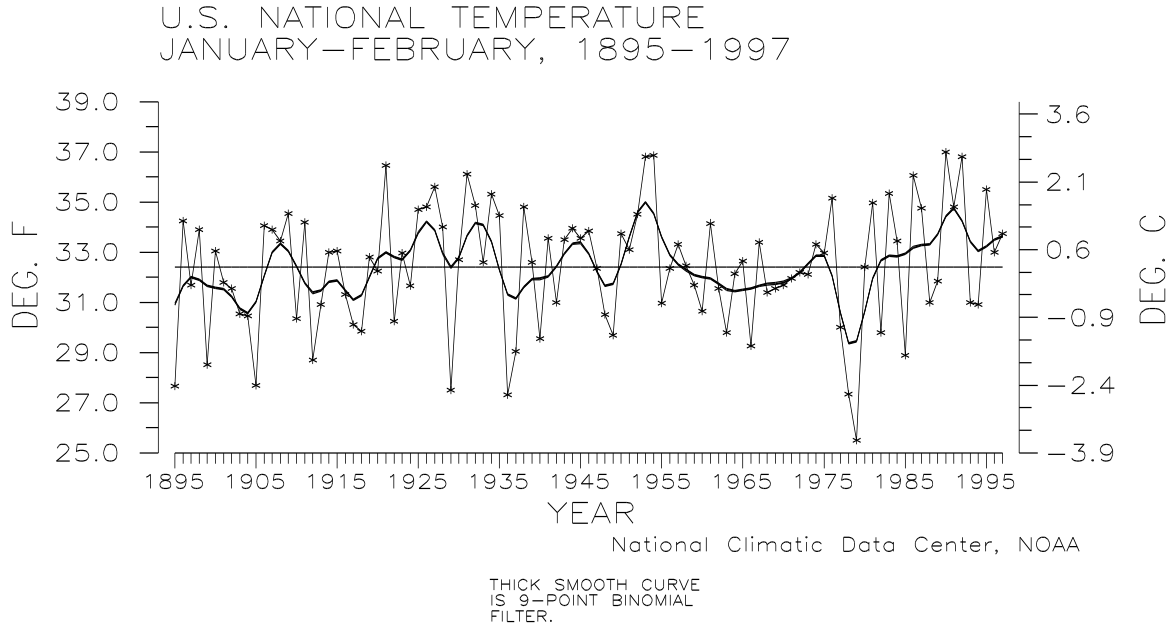


Figure 4: Preliminary data indicate that the two-month period, January-February 1997, was the 32nd warmest such period since 1895. About two-percent of the country was much warmer than normal while none of the country was much cooler than normal.

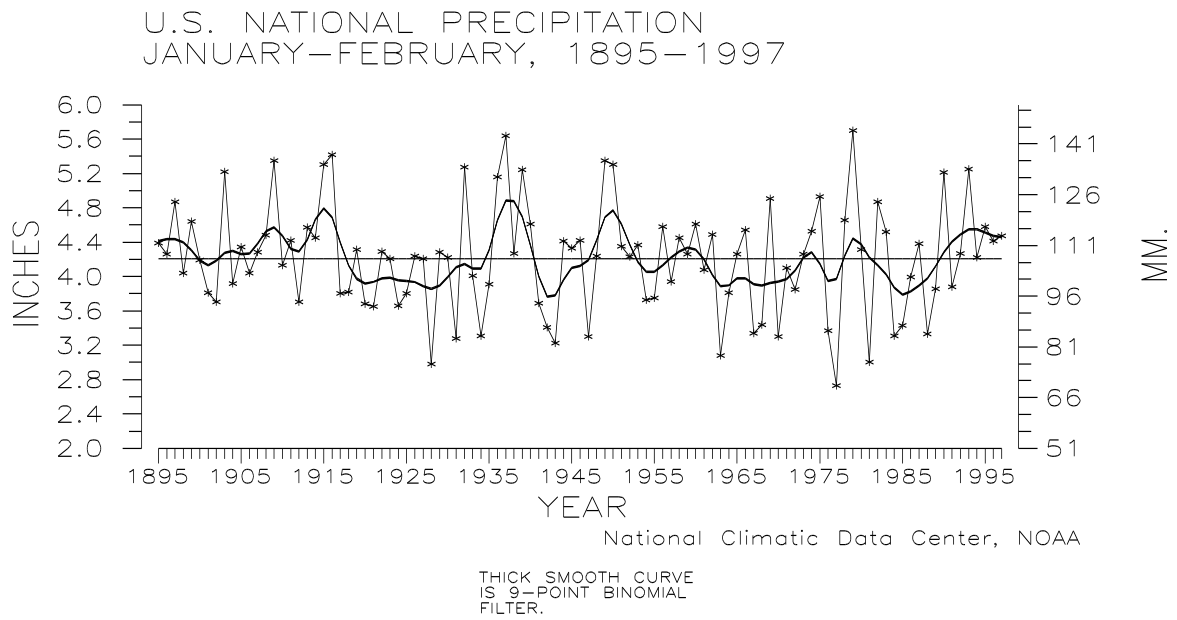


Figure 5: Preliminary precipitation data indicate that the year-to-date, January-February 1997, was the 30th wettest such two-month period since records began. Nearly 13% of the country was much wetter than normal while about four percent of the country was much drier than normal.

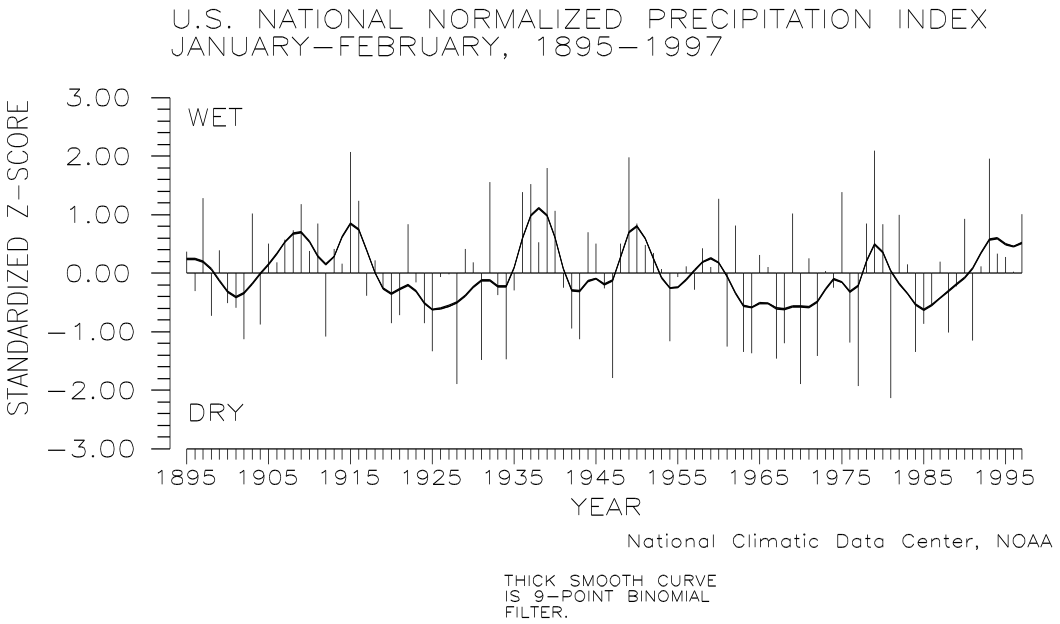


Figure 6: The preliminary national year-to-date standardized precipitation index ranked 1997 as the 17th wettest such period since 1895.

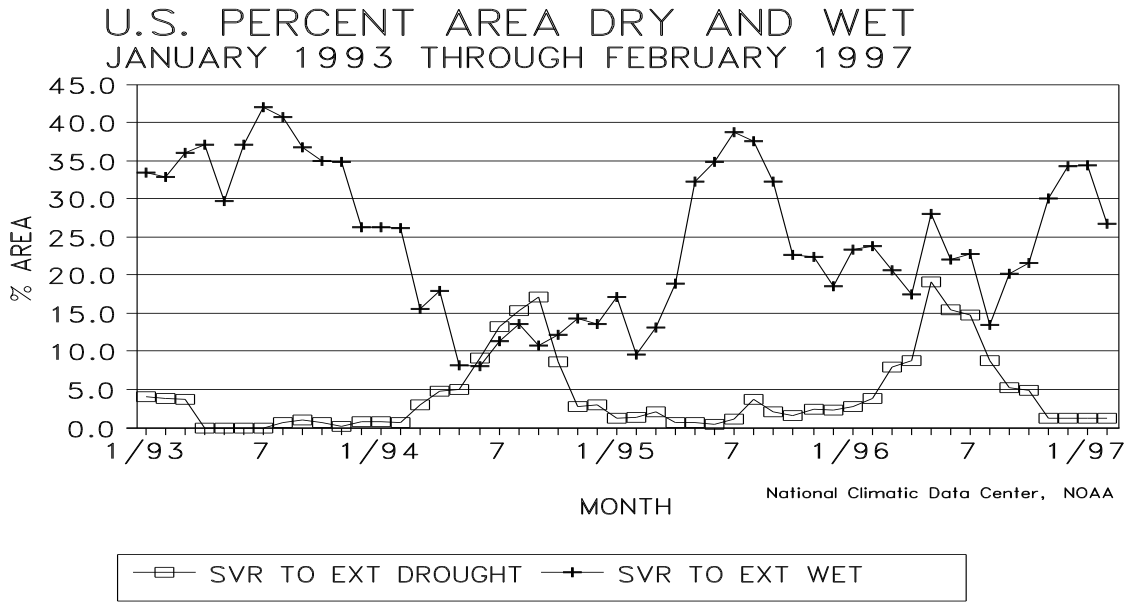


Figure 7: Long-term drought coverage (as measured by the Palmer Drought Index) remained relatively constant for the fourth straight month during February 1997 at slightly above one-percent of the country. The percent area of the country experiencing severe to extreme wetness dropped for the first time in six months to about 27% of the country. Core wet areas included the Northern Great Plains, Northern Rockies, Great Basin, the interior Northwest, and portions of New England. Core dry areas were limited to portions of the Southwest.

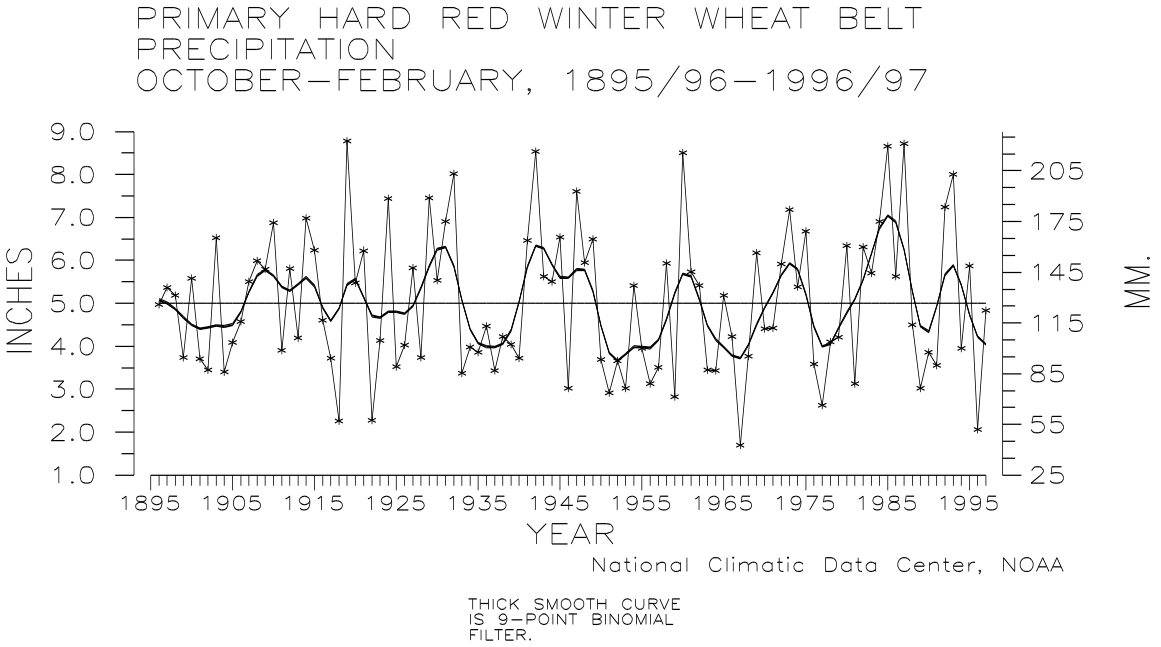


Figure 8: Growing season precipitation for the Primary Hard Red Winter Wheat Belt was near normal for the five-month growing season to date. This compared with one of the driest growing seasons on record just last season.

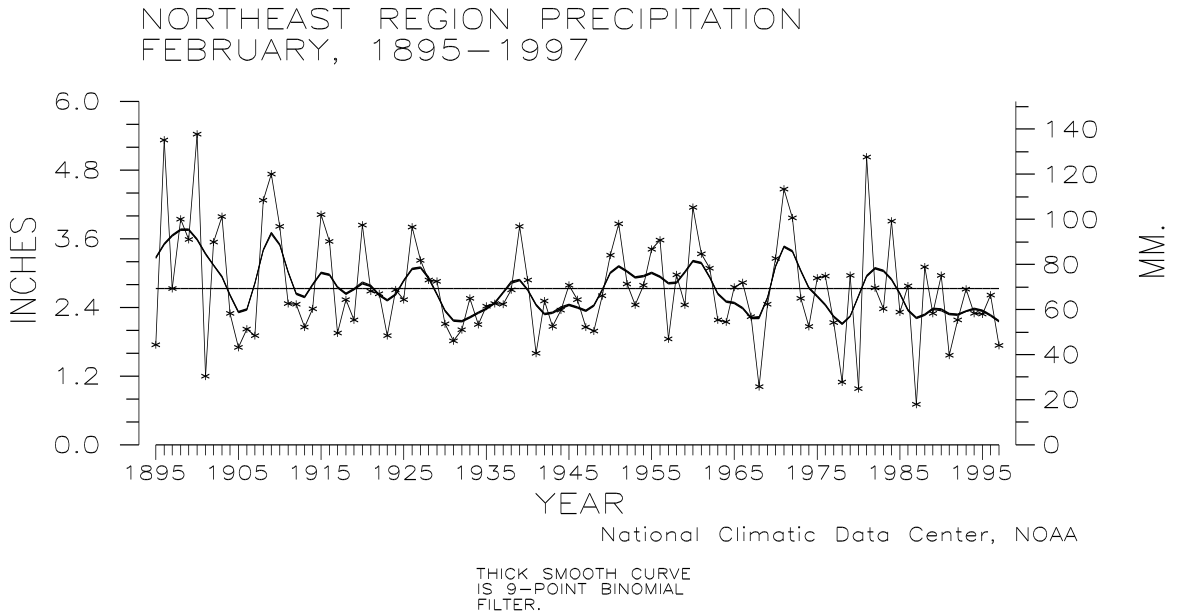


Figure 9: Preliminary data indicate that February 1997 was the ninth driest such month on record for the Northeast region. This region includes all of the states from Maryland and Pennsylvania, northward.

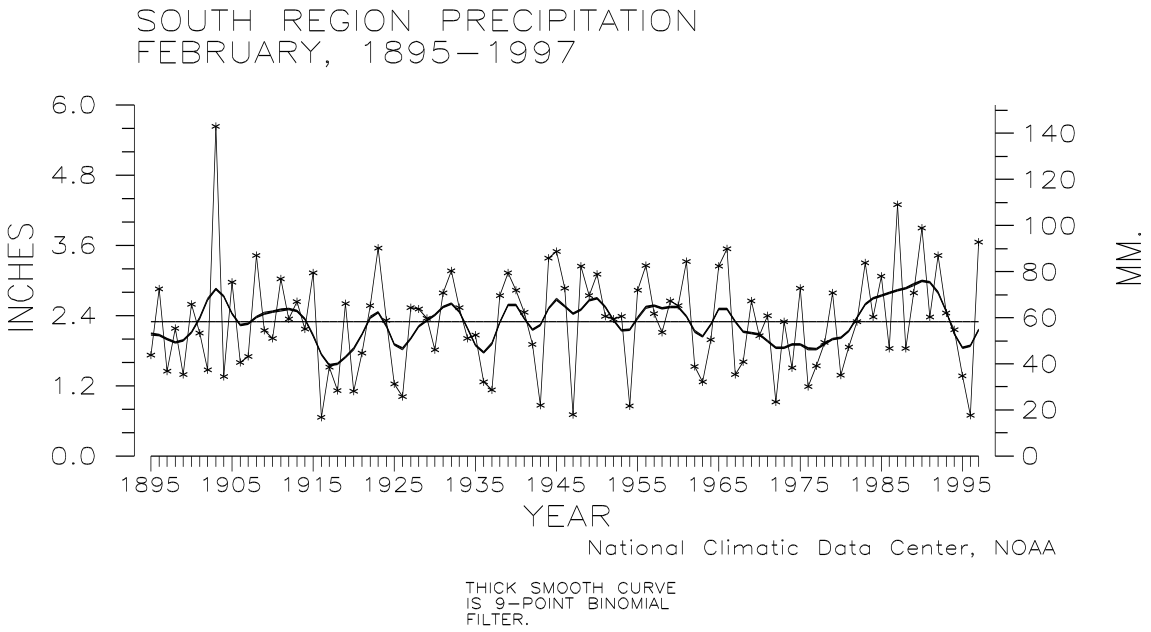


Figure 10: Preliminary data indicate that February 1997 was the fourth wettest such month on record for the South region. A nearly persistent Mississippi valley trough and abundant moisture from the Gulf of Mexico were the main culprits for this fact. It was just last February that the region saw some of the driest conditions on record.

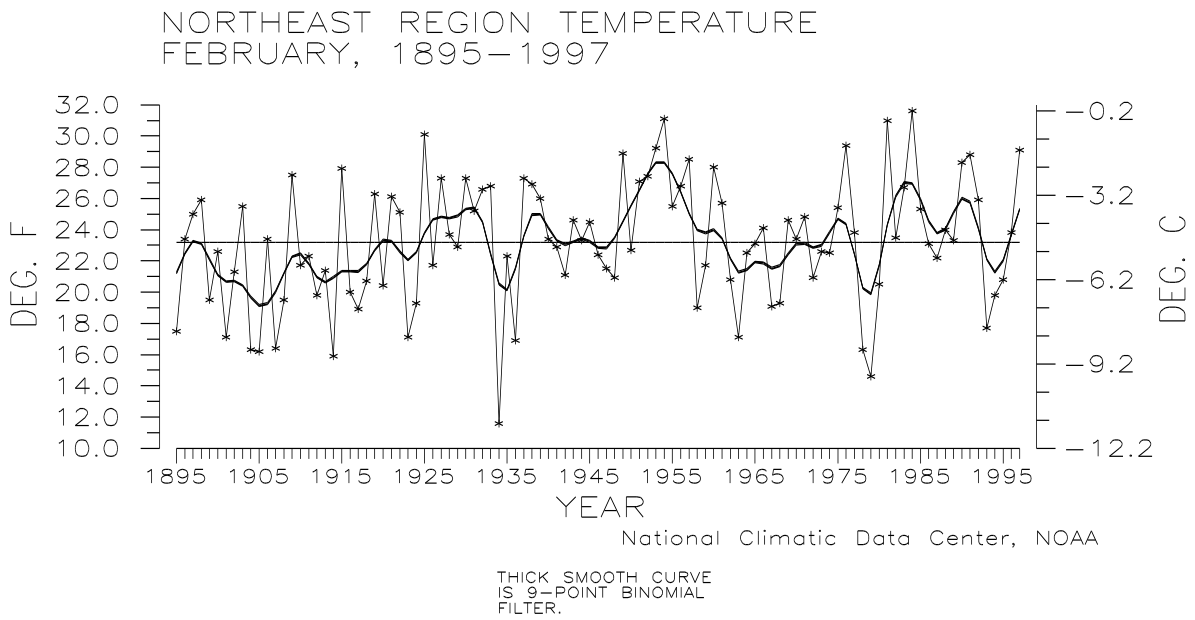


Figure 11: February 1997 was the seventh warmest such month on record for the Northeast region.

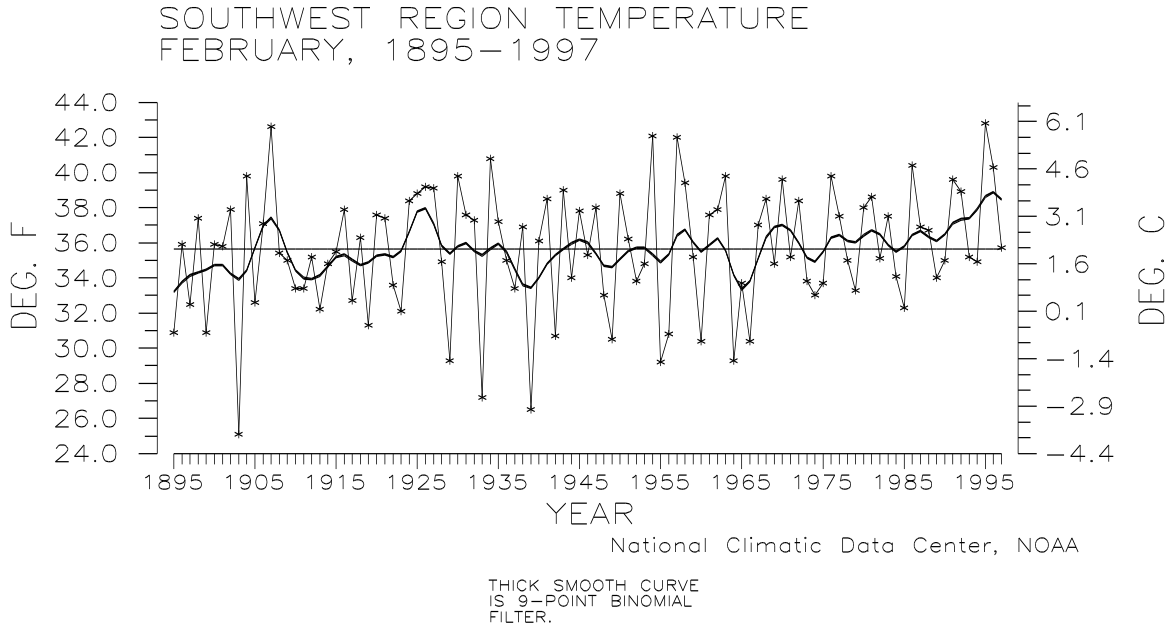


Figure 12: The Southwest Region had the 52nd warmest February since records began in 1895. This continued the occurrence of near- to above-normal temperatures for February running twelve consecutive such months.

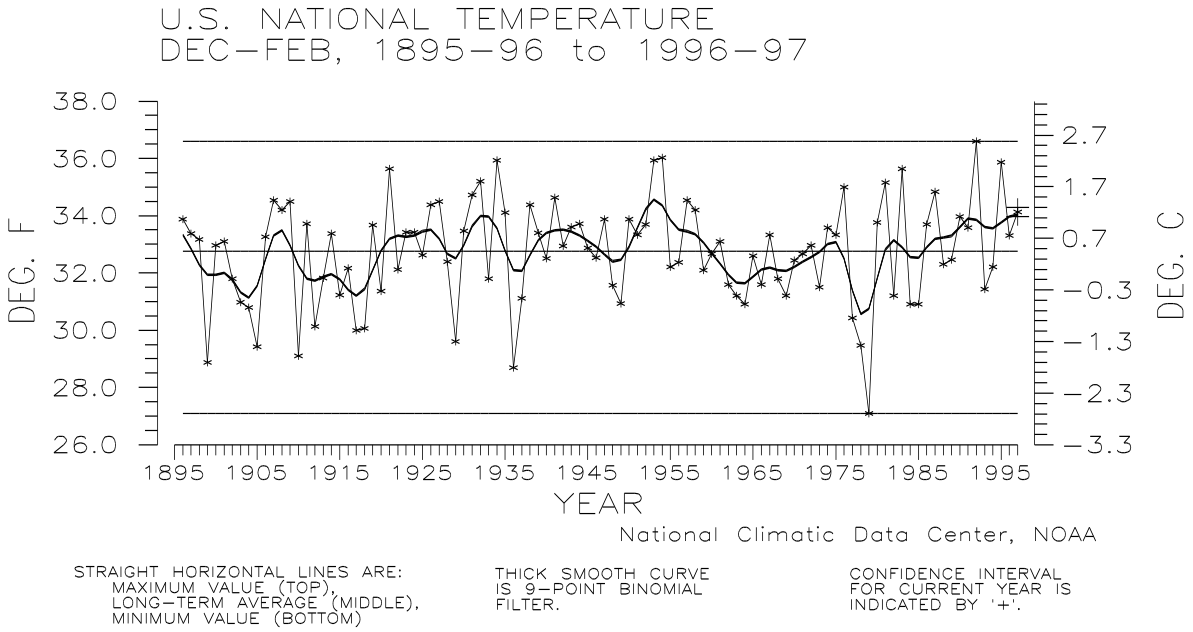


Figure 13: Preliminary data for Winter (Dec-Feb) 1996-97 indicate that temperature averaged across the contiguous United States was above the long-term mean ranking as the 22nd warmest winter since 1895. About a twelfth (8.5%) of the country averaged much warmer than normal, and less than one percent (0.2%) averaged much colder than normal.

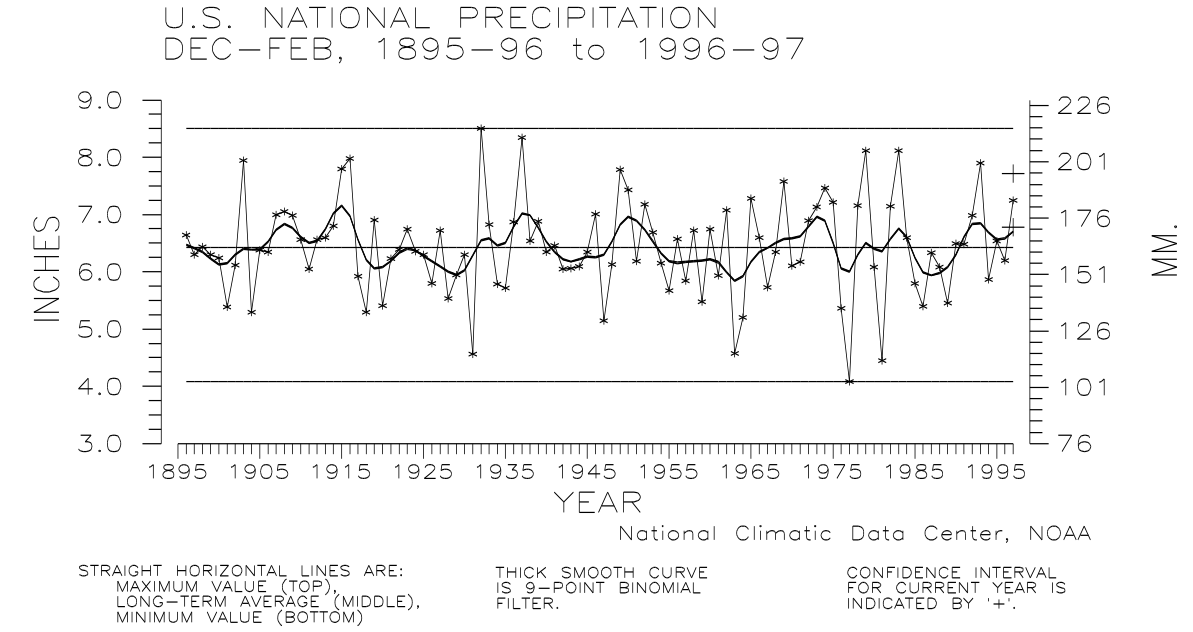


Figure 14: Winter 1996-97 was the 14th wettest winter since 1895. About one sixth (18.0%) of the country averaged much wetter than normal for Winter 1996-97, while about four percent averaged much drier than normal.

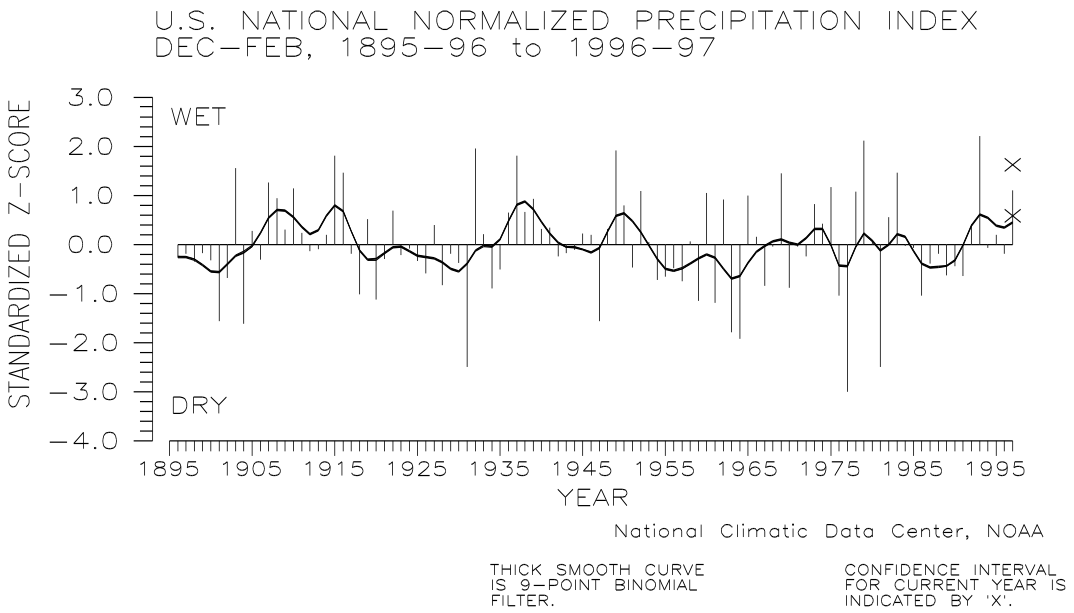


Figure 15: The preliminary national standardized precipitation index ranked Winter 1996-97 as the 14th wettest winter on record. This standardized z-score is estimated to be accurate to within 0.52 index units and its confidence interval is shown as an 'X'.

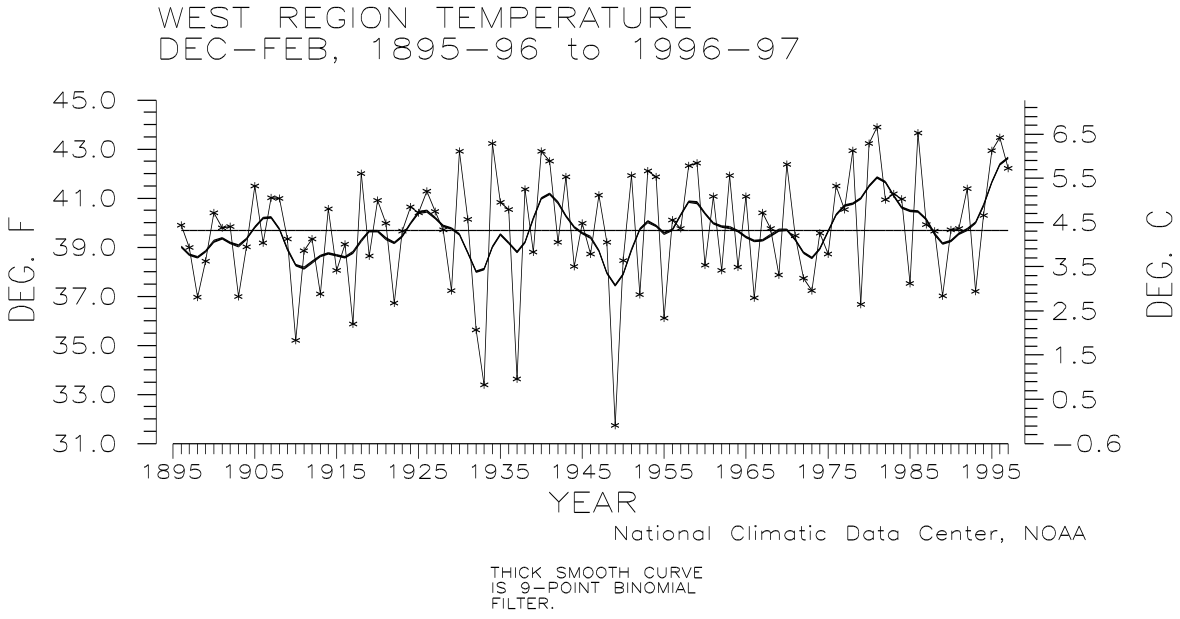


Figure 16: Temperatures averaged across the West region gave Winter 1996-97 a preliminary rank of 14th warmest winter since 1895. Temperatures in this region have averaged unusually warm for the past three consecutive winters.

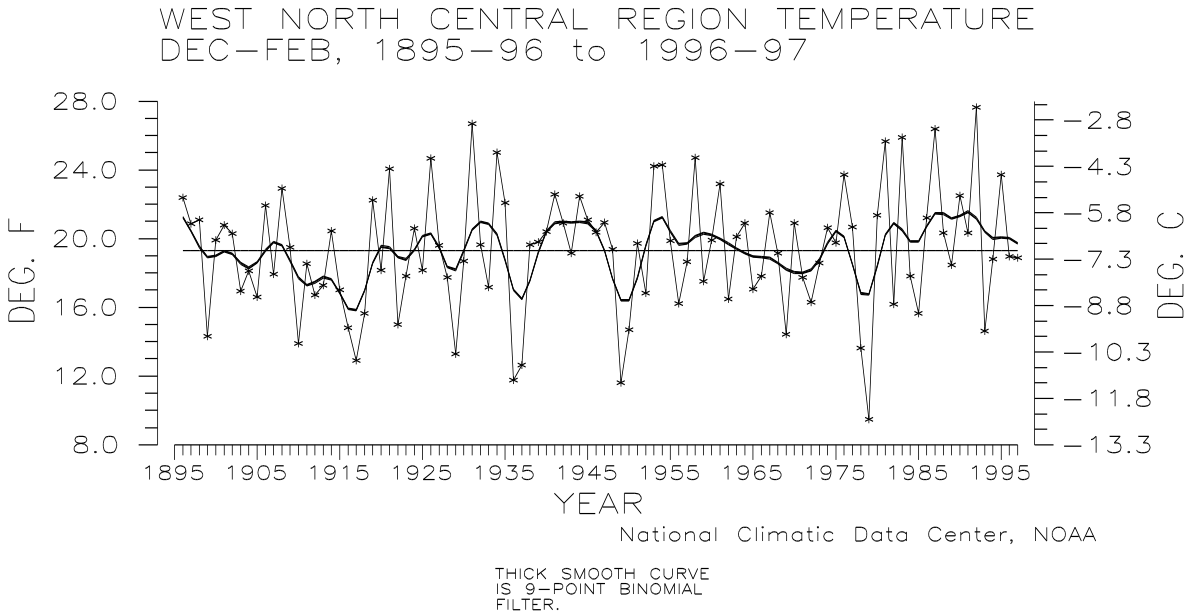


Figure 17: Temperatures averaged across the West North Central region gave Winter 1996-97 a preliminary rank of 45th coldest winter since 1895.

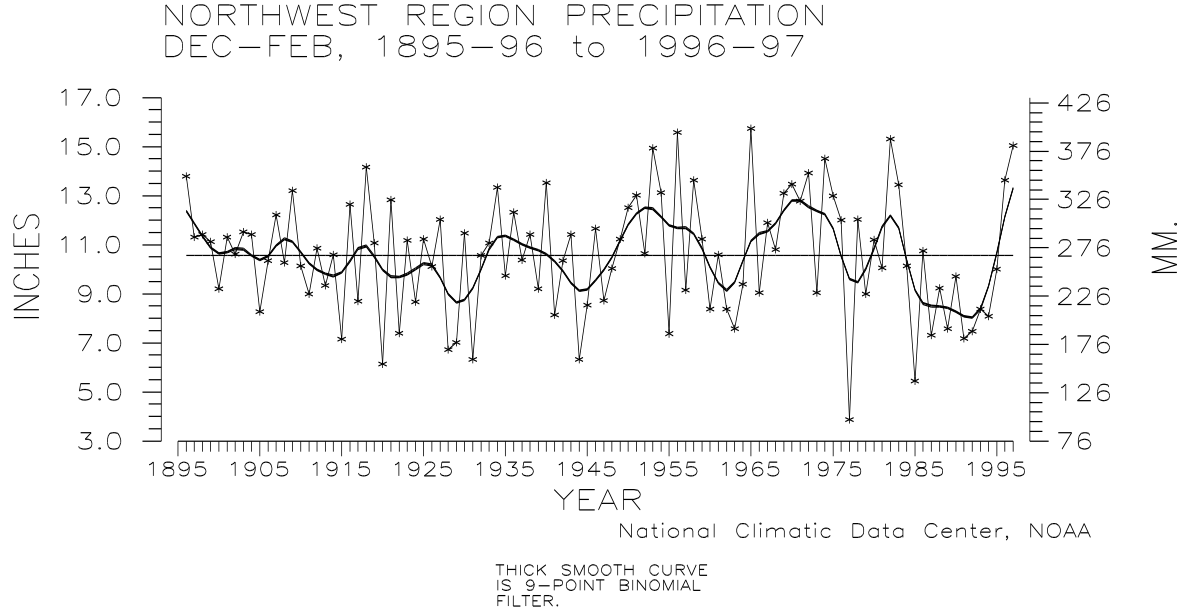


Figure 18: Precipitation averaged over the Northwest region gave Winter 1996-97 a preliminary rank of fourth wettest winter since 1895. The last two winters have been unusually wet and stand in sharp contrast to the persistent winter dryness from the mid-1980's to mid-1990's.

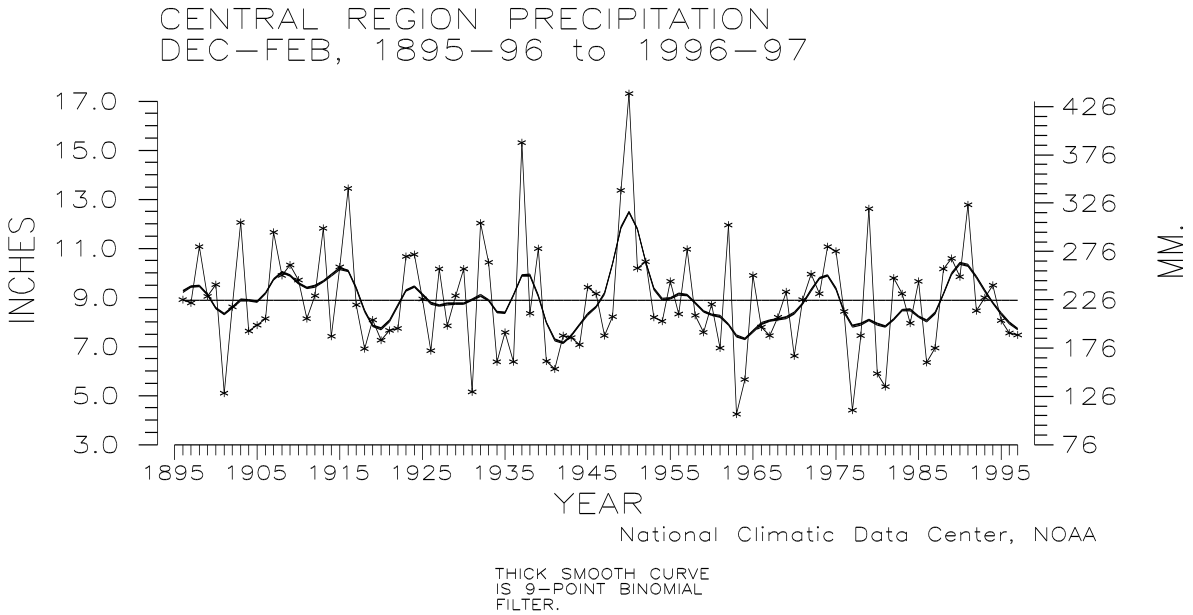


Figure 19: Precipitation averaged across the Central region gave Winter 1996-97 a preliminary rank of 26th driest winter since 1895.

FEBRUARY 1997 STATEWIDE RANKS

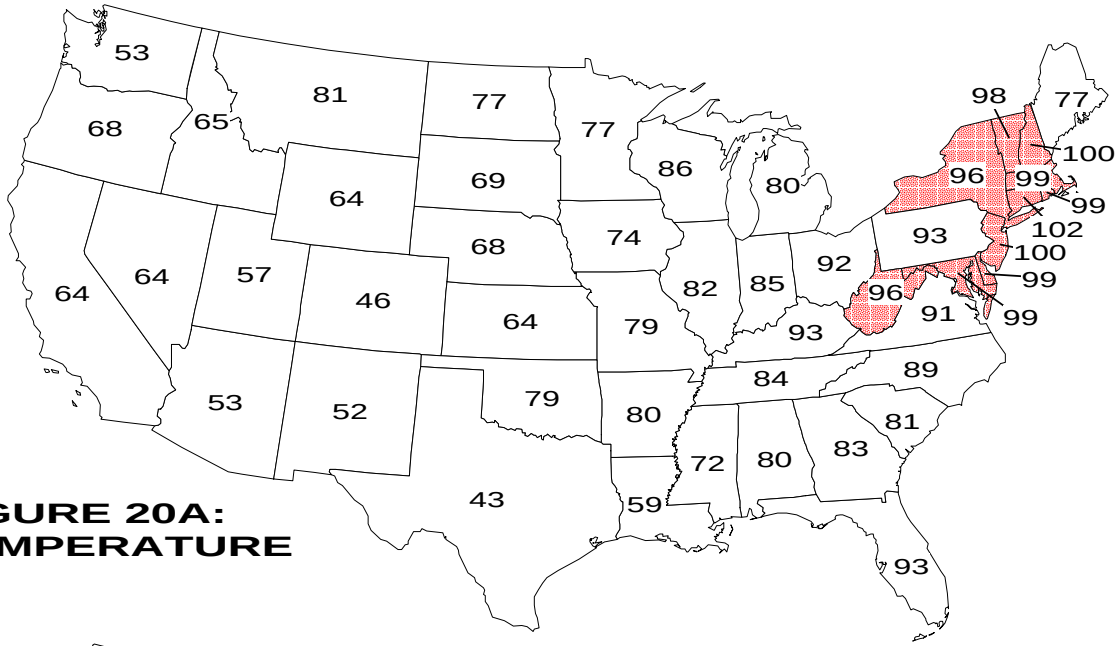


FIGURE 20A: TEMPERATURE

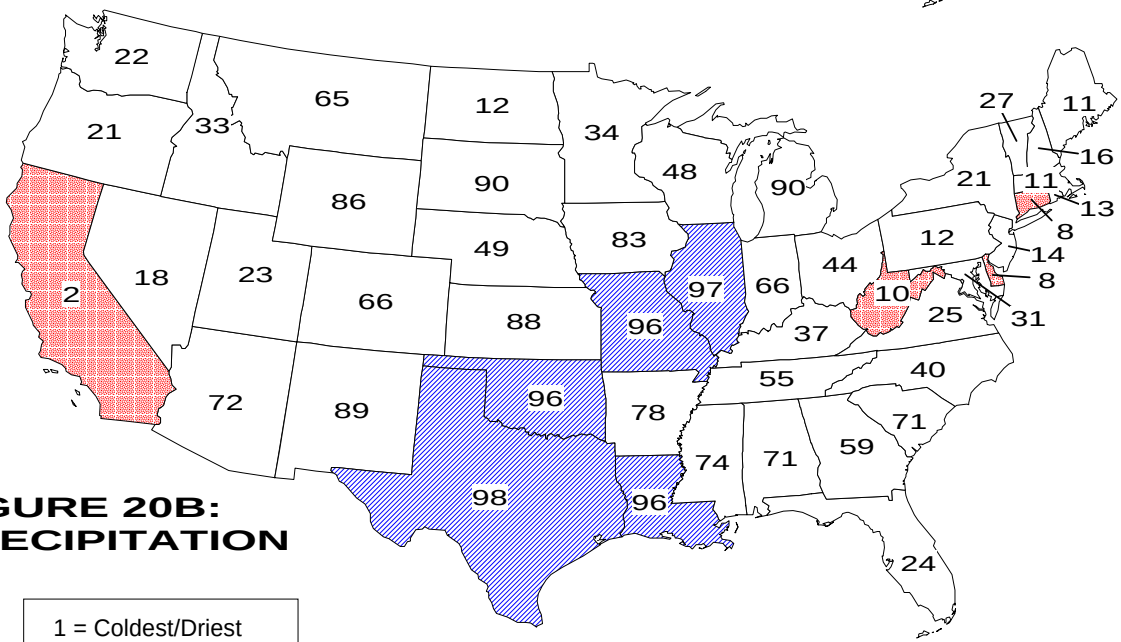


FIGURE 20B: PRECIPITATION

1 = Coldest/Driest
103 = Warmest/Wettest

National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1997. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 94-103) are shaded.

WINTER (DJF) 1996-97 STATEWIDE RANKS

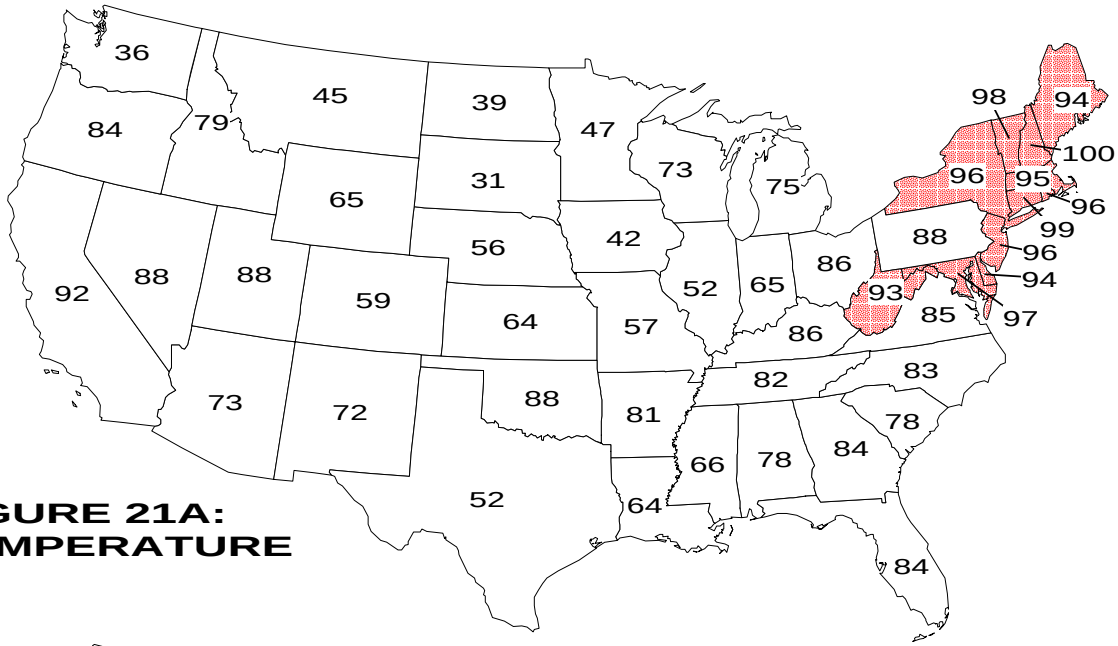


FIGURE 21A: TEMPERATURE

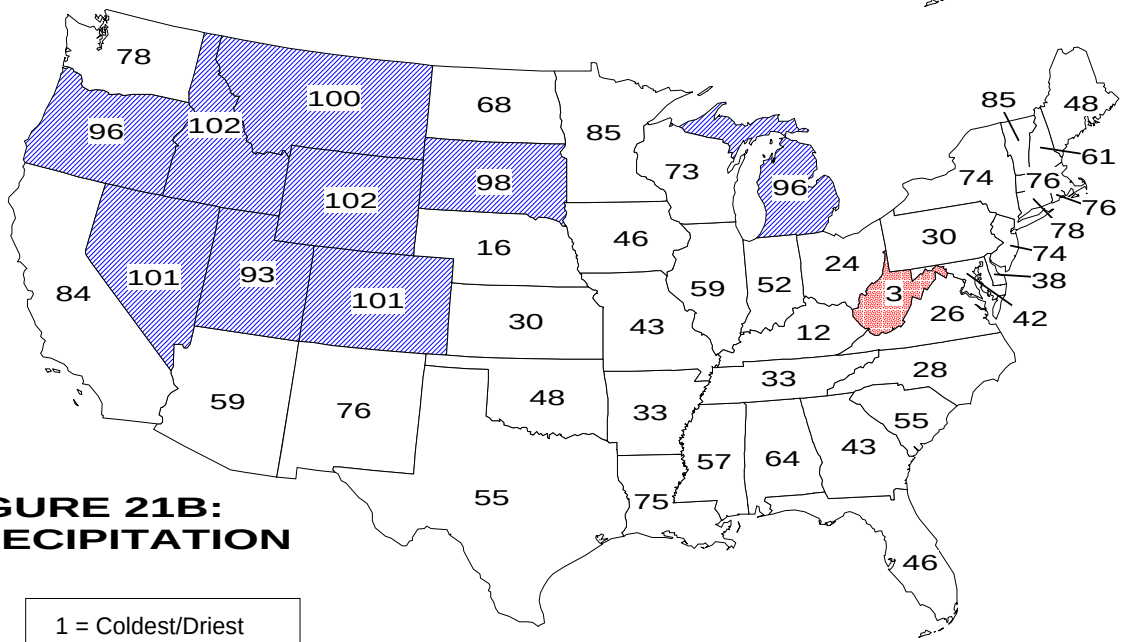


FIGURE 21B: PRECIPITATION

1 = Coldest/Driest
102 = Warmest/Wettest

National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1997. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 93-102) are shaded.

Figure 20A shows, in illustrative map form, the February 1997 temperature rankings for the 48 contiguous states. Ten states ranked within the top ten warm portion of the historical distribution including the second warmest February on record for Connecticut and the fourth warmest February since 1895 for New Hampshire and New Jersey. February 1997 was the fifth warmest such month on record for Delaware, Maryland, Massachusetts, and Rhode Island. Twenty-three other states ranked within the warm third of the distribution. No state was within the cool third of the distribution for February 1997.

Figure 20B shows the February 1997 precipitation rankings for the 48 contiguous states. Five states ranked within the top ten wet portion of the distribution. It was the sixth wettest February on record for Texas, seventh wettest such month for Illinois and the eighth wettest February since 1895 for Louisiana, Missouri and Oklahoma. Eleven other states ranked within the wet third portion of the historical distribution. Four states had their tenth driest or drier February on record. February 1997 was the second driest such month on record for California, eighth driest for Connecticut and Delaware, and the tenth driest February since 1895 for West Virginia. Eighteen other states ranked within the dry third of the historical distribution.. ***It should be noted that these February state categorical precipitation ranks are preliminary and should be used with considerable caution due to the high variability of precipitation on a small space and time scale.***

Winter 1996-97 statewide ranks are shown in Figures 21A (temperature) and 21B (precipitation). The overall winter temperature pattern was unusual warmth in the Northeast and southwestern U.S., with the coldest ranks in the northern Plains states (Figure 21A). Winter 1996-97 was unusually wet over much of the Far West, northern Great Lakes, and Northeast, and comparatively dry in the central Plains and central Appalachians.

It should be emphasized that all of the temperature and precipitation ranks on these maps and in the tables are based on preliminary data. The ranks will change when the final data are processed.